PRECEDENTIAL OPINION

Pursuant to the Board of Patent Appeals and Interference's Standard Operating Procedure 2, the opinion below has been designated a precedential opinion.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MAREK Z. KUBIN and RAYMOND G. GOODWIN

Appeal 2007-0819
Application 09/667,859
Technology Center 1600

Decided: May 31, 2007

Before MICHAEL R. FLEMING, *Chief Administrative Patent Judge,* TEDDY S. GRON, TONI R. SCHEINER, ERIC GRIMES, and NANCY J. LINCK, *Administrative Patent Judges.*

LINCK, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a 35 U.S.C. § 134 appeal in the above-referenced case.[1]

We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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[1] The application was filed September 20, 2000. The real party in interest is Immunex Corporation, a wholly owned subsidiary of Amgen Inc.

"nucleotide and amino acid sequences of CD48 are known." (*Id.*) Antibodies to CD48 appear to suppress cell mediated immunity. (*Id.* at 6-7.) "The identification of CD48 as a NAIL counter-structure . . . allows the generation of molecules that can modulate the activation of NK . . . cells." (*Id.* at 45.) Thus, the determination of binding to CD48 potentially provides a useful tool to identify active variants of NAIL. (*See, e.g.*, claim 73.)

The claimed subject matter is reflected in representative claim 73:[2]

73. An isolated nucleic acid molecule comprising a polynucleotide encoding a polypeptide at least 80% identical to amino acids 22-221 of SEQ ID NO:2, wherein the polypeptide binds CD48.

The Examiner has rejected claims 73-78 and 80-89 under 35 U.S.C. § 103(a) over the combined teachings of Valiante et al., U.S. Patent No. 5,688,690 (issued Nov. 18, 1997) ("Valiante"); Sambrook et al., *Molecular Cloning: A Laboratory Manual*, 2nd Edition, 2.43-2.84 (Cold Spring Harbor, N.Y. 1989) ("Sambrook");[3] and Porunelloor Mathew et al., *Cloning and Characterization of the 2B4 Gene Encoding a Molecule Associated with Non-MHC-Restricted Killing Mediated by Activated Natural Killer Cells and T Cells*, 151 J. IMMUNOL., 5328-5337 (1993) ("Mathew").[4]

The Examiner also has rejected claims 73, 74, 80, and 84-89 under 35 U.S.C. § 112, ¶ 1, for lack of enablement and written description.

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[2] Appellants do not separately argue the claims. Thus, we address each issue with reference to claim 73.

[3] We note Sambrook is incorporated by reference in Valiante (col. 7, ll. 55-57).

[4] This reference is referred to as "Porunelloor" by the Examiner and Appellants.

3. Valiante does not disclose the sequence of p38 recognized by mAb C1.7 or the DNA encoding p38. (*See* Valiante passim; Answer 12.)

4. The DNA and protein sequences of p38, and thus NAIL, could have been obtained by conventional methodologies, such as those taught by Sambrook. (Valiante, col. 7, l. 48 to col. 8, l. 7; *see also* Answer 12.)

5. Sambrook is incorporated by reference in Valiante. (Col. 7, ll. 55-57.)

6. Mathews' cell surface signaling molecule, 2B4, is the mouse version of Valiante's p38, the human version. (Answer 15.)

7. Mathews cloned the gene encoding 2B4 and determined its nucleotide sequence. (Mathews at 5328 (Abstract).)

8. The relevant teachings in Mathews are cumulative to the teachings in Valiante and Sambrook and merely are exemplary of how routine skill in the art can be utilized to clone and sequence the cDNA of a similar polypeptide. (*See* Answer 15.)

9. Appellants employed conventional methods, "such as those outlined in Sambrook," to isolate a cDNA encoding NAIL and determine the cDNA's full nucleotide sequence (SEQ NOS: 1 & 3). (Spec. 10: 29 to 13: 7; Spec. 16: 40 to 17: 1; Spec. 65 (Example 1).)

10. Appellants' claimed polynucleotide is "isolated from [a] cDNA library . . . using the commercial monoclonal antibody C1.7 . . . disclosed by Valiante." (Answer 13. *See also* Spec. 65: 17-32.)

11. As acknowledged by Appellants, "the level of skill in the art is high." (Br. 11 (citing *In re Wands*, 858 F.2d 731, 740, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).)

conventional methodologies, such as those disclosed in Sambrook and utilized in Valiante, to do so. (*See, e.g.,* Valiante, col. 7, l. 48 to col. 8, l. 33.) *See Alza Corp. v. Mylan Labs*, 464 F.3d 1286, 1289, 80 USPQ2d 1001, 1003 (Fed. Cir. 2006) ("'The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact.' *In re Gartside*, 203 F.3d 1305, 1316, 53 USPQ2d 1769, 1776 (Fed. Cir. 2000).").

Discussion of the § 103(a) Issue

Based on our findings and those of the Examiner, at least one of Appellants' claimed polynucleotides would have been obvious to one of ordinary skill in the art at the time Appellants' invention was made. Regardless of some factual similarities between *Deuel* and this case, *Deuel* is not controlling and thus does not stand in the way of our conclusion, given the increased level of skill in the art and the factual differences. *See In re Wallach*, 378 F.3d 1330, 1334, 71 USPQ2d 1939, 1942 (Fed. Cir. 2004) ("state of the art has developed [since] *In re Deuel*").

Appellants argue the "cited references do not provide an adequate written description of the claimed nucleic acid sequences." (Reply Br. 18 (citing *Noelle v. Lederman*, 355 F.3d 1343, 69 USPQ2d 1508 (Fed. Cir. 2004)). In so arguing, Appellants overlook the distinction between obviousness under § 103 and lack of written description under § 112, § 1. A single, obvious species within a claimed genus renders the claimed genus unpatentable under § 103. Thus, an obvious method of obtaining a single nucleic acid molecule encoding NAIL may be all that is required to show that the presently claimed genus of nucleic acid molecules is unpatentable under § 103. In contrast, as discussed *infra* (see pp. 15-17), the description

When there is motivation

> to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, ___, 82 USPQ2d 1385, 1397 (2007). This reasoning is applicable here. The "problem" facing those in the art was to isolate NAIL cDNA, and there were a limited number of methodologies available to do so. The skilled artisan would have had reason to try these methodologies with the reasonable expectation that at least one would be successful. Thus, isolating NAIL cDNA was "the product not of innovation but of ordinary skill and common sense," leading us to conclude NAIL cDNA is not patentable as it would have been obvious to isolate it.

Appellants also argue lack of motivation to combine the cited references. (Br. 20-22; Reply Br. 19-21.) Motivation to combine references "may be found in implicit factors, such as 'knowledge of one of ordinary skill in the art, and [what] the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art'." *Alza Corp. v. Mylan Labs.*, 464 F.3d 1286, 1291, 80 USPQ2d 1001, 1004 (Fed. Cir. 2006) (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1337 (Fed. Cir. 2006)). *See also KSR*, 127 S. Ct. at ___, 82 USPQ2d at 1396 (citing with approval *In re Kahn*, 441 F.3d at 988, 78 USPQ2d at 1336).

More specifically, Appellants argue Mathews "teaches that a human homolog is not expressed," and thus "a person of skill in the art would not be motivated to combine" Mathews with Valiante. (Reply Br. 21.)

Appellants respond: "The Office's reasoning ignores the many references that positively demonstrate that proteins can be mutated and maintain a biological function." (Reply Br. 4 (citing numerous publications in support).) Moreover, "the specification provides extensive guidance for creating and screening mutants" (Reply Br. 5) in that it "teaches in detail how to: 1) make variants of SEQ ID NOs: 1 and 2; 2) calculate the percent identity between SEQ ID NOs: 1 and 2 and the variant sequence; and 3) test the variant sequence to determine if it binds to CD48" (Br. 11; Reply Br. 6). Thus, according to Appellants, only routine experimentation would be required to practice the claimed invention. (Reply Br. 9.)

In view of these conflicting positions, we frame the enablement issue as follows: Considering the relevant *Wands* factors, including the prior art teachings cited by the Examiner and Appellants to establish the level of predictability in the relevant art, would undue experimentation have been required to practice the full scope of claim 73?

The Written Description Issue

The Examiner bases his written description rejection on the same claim language as the enablement rejection, i.e., "at least 80% identity," and finds Appellants' disclosed sequences inadequate to show "possession of" their claimed genus. (Answer 9 (citing *University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997).)

In response, Appellants contend (1) *Lilly* can be distinguished on its facts and (2) the Examiner's position is inconsistent with Example 14 in the

22. The Specification does not disclose any variants in which the nucleotide sequence encoding amino acids 22-221 of SEQ ID NO:2 is varied. (Spec. *passim.*)

23. Thus, the Specification does not disclose "which 20% . . . of amino acid residues should be changed in order to maintain the biological functions for binding to CD48." (Answer 5.)

24. The Specification "teaches in detail how to: 1) make variants of SEQ ID NOs: 1 and 2; 2) calculate the percent identity between SEQ ID NOs: 1 and 2 and the variant sequence; and 3) test the variant sequence to determine if it binds to CD48." (Br. 11; Reply Br. 6.)

25. The Specification does not disclose a correlation between function (binding to CD48) and structure responsible for binding to CD48 (other than the entire extracellular domain) such that the skilled artisan would have known what modifications could be made of the very large number of modifications potentially encompassed by claim 73 without losing function. (*See* Spec. *passim*; Answer 10.)

26. At the time Appellants' application was filed, molecular biology was generally an unpredictable art, as evidenced by the references cited by the Examiner. (Answer 4 (citing Robin E. Callard & Andy J.H. Gearing, The Cytokine FactsBook 188-89 (Academic Press 1994); Struyf et al., *Natural truncation of RANTES abolishes signaling through the CC chemokine receptors CCR1 and CCR3, impairs its chemotactic potency and generates a CC chemokine inhibitor*, 28 Eur. J. Immunol. 1262-71 (1998); & Proudfoot et al., U.S. Patent 6,159,711 (Dec. 12, 2000).)

1360, 47 USPQ2d 1705, 1719 (Fed. Cir. 1998) ("test [for undue experimentation] is not merely quantitative . . . if it is merely routine"). A "patent need not teach, and preferably omits, what is well known in the art." *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986). Thus, we conclude the Specification would have enabled the full scope of claim 73.

Discussion of the Written Description Issue

In spite of concluding claim 73 would have been enabled, Federal Circuit caselaw compels us to find the written description requirement is not met. *See generally, e.g., University of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 69 USPQ2d 1886 (Fed. Cir. 2004); *Enzo Biochem. Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 63 USPQ2d 1609 (Fed. Cir. 2002); *University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997); *Fiers v. Revel*, 984 F.2d 1164, 25 USPQ2d 1601 (Fed. Cir. 1993).

"Although there is often significant overlap" between the enablement and written description requirements, "they are nonetheless independent of each other." *University of Rochester*, 358 F.3d at 921, 69 USPQ2d at 1891. An "invention may be enabled even though it has not been described." *Id.* Such is the situation here. While we conclude one skilled in the art would have been able to make and use the full scope of claim 73 through routine experimentation, we find Appellants did not describe the invention of claim 73 sufficiently to show they had possession of the claimed genus of nucleic acids. *See, e.g., Noelle v. Lederman*, 355 F.3d 1343, 1348, 69 USPQ2d 1508, 1513 (Fed. Cir. 2004) ("invention is, for purposes of the 'written description' inquiry, *whatever is now claimed*").

that function and a structure that is sufficiently known or disclosed," the written description requirement may be met).

Without a correlation between structure and function, the claim does little more than define the claimed invention by function. That is not sufficient to satisfy the written description requirement. *See Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406 ("definition by function ... does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is").

With respect to Appellants' reliance on hypothetical Example 14 in the Office's *Synopsis*, "[c]ompliance with the written description requirement is essentially a fact-based inquiry that will 'necessarily vary depending on the nature of the invention claimed.'" *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991) (quoting *In re DiLeone*, 436 F.2d 1404, 1405, 168 USPQ 592, 593 (CCPA 1971)), *quoted with approval in Enzo*, 323 F.3d at 963, 63 USPQ2d at 1612. While the *Written Description Guidelines* and the hypothetical examples in the Office's *Synopsis* can be helpful in understanding how to apply the relevant law (as it existed in 2001 when the Guidelines were adopted), they do not create a rigid test.

Based on the above, we find the written description requirement of § 112, ¶ 1, is not met.

CONCLUSION

In summary, with respect to claim 73, we affirm the § 103(a) rejection, reverse the § 112, ¶ 1, enablement rejection, and affirm the § 112, ¶ 1, written description rejection.